

ARTICLE 17. ARIZONA STATE HAZARDOUS AIR POLLUTANTS PROGRAM

R18-2-1701. Definitions

The following definitions, and the definitions contained in Article 1 of this Chapter and A.R.S. § 49-401.01 apply to this Article unless the context otherwise applies.

1. “Acute adverse effects to human health” means those effects described in paragraph 3 of this Section that are of short duration or rapid onset.
2. “Acute Ambient Air Concentration (AAAC)” means that concentration of a hazardous air pollutant, in the ambient air, above which it is predicted that the general population, including susceptible populations, could experience acute adverse effects to human health.
3. “Adverse effects to human health” means those effects that result in or significantly contribute to an increase in mortality or an increase in serious irreversible or incapacitating reversible illness, including adverse effects that are known to be or may reasonably be anticipated to be caused by substances that are acutely toxic, chronically toxic, carcinogenic, mutagenic, teratogenic, neurotoxic or causative of reproductive dysfunction.
4. “Adverse environmental effect” means any significant and widespread adverse effect which may reasonably be anticipated on wildlife, aquatic life, or other natural resources, including adverse impacts on populations of endangered or threatened species or significant degradation of environmental quality over broad areas.
5. “Ambient air concentration (AAC)” means that concentration of a hazardous air pollutant in the ambient air, listed in R18-2-1708(D)(1) or determined in accordance with R18-2-1708(D)(2) or (D)(3), above which it is predicted that the general population, including susceptible populations, could experience adverse effects to human health.
6. “Arizona maximum achievable control technology” or “AZMACT” means an emission standard that requires the maximum degree of reduction in emissions of the hazardous air pollutants subject to this chapter, including a prohibition on such emissions where achievable, and that the director, after considering the cost of achieving such emission reduction and any non-air quality health and environmental impacts and energy requirements, determines to be achievable by an affected source to which such standard applies, through application of measures, processes, methods, systems or techniques including measures which:
 - a. Reduce the volume of, or eliminate emissions of, such pollutants through process changes, substitution of materials or other modifications;
 - b. Enclose systems or processes to eliminate emissions;

- c. Collect, capture or treat such pollutants when released from a process, stack, storage or fugitive emissions point;
 - d. Are design, equipment, work practice, or operational standards, including requirements for operator training or certification; or
 - e. Are a combination of the above.
- 7. “Chemical Abstract Service (CAS) Number” means a unique, identifying number assigned by the Chemical Abstract Service to each distinct chemical substance.
- 8. “Chronic adverse effects to human health” means those effects described in paragraph 3 of this Section that are of a persistent, recurring, or long-term nature or that are delayed in their onset.
- 9. “Chronic Ambient Air Concentration (CAAC)” means that concentration of a hazardous air pollutant, in the ambient air, above which it is predicted that the general population, including susceptible populations, could experience chronic adverse effects to human health.
- 10. “Federally listed hazardous air pollutant” means any air pollutant adopted under R18-2-1703.
- 11. “Hazardous air pollutant” means any federally listed hazardous air pollutant.
- 12. “Hazardous air pollutant reasonably available control technology” or “HAPRACT” means an emissions standard for hazardous air pollutants which the director, acting pursuant to section 49-426.06, subsection C, or the control officer, acting under section 49-480.04, subsection C, determines is reasonably available for a source. In making the foregoing determination the director or control officer shall take into consideration the estimated actual air quality impact of the standard, the cost of complying with the standard, the demonstrated reliability and widespread use of the technology required to meet the standard and any non-air quality health and environmental impacts and energy requirements. For purposes of this definition, an emissions standard may be expressed as a numeric emissions limitation or as a design, equipment, work practice or operational standard.
- 13. “Major source of state hazardous air pollutants (HAPs)” means:
 - a. A stationary source that emits or has the potential to emit in the aggregate, including fugitive emissions, ten (10) tons per year or more of any state hazardous air pollutant or twenty-five (25) tons per year or more of any combination of state hazardous air pollutants.

- b. Any change to a minor source of hazardous air pollutants that would increase its emissions to the qualifying levels in subsection (a).
- 14. “Minor source of state hazardous air pollutants (HAPs)” means:
 - a. A stationary source that emits or has the potential to emit, including fugitive emissions, one ton or more but less than 10 tons per year of any hazardous air pollutant or two and one-half tons or more but less than 25 tons per year of any combination of hazardous air pollutants.
 - b. Any change to a source of hazardous air pollutants that would increase its emissions to the qualifying levels in subsection (a).
- 15. “Modification” or “modify” means a physical change in, or change in the method of operation of, a source which increases the actual emissions of any state hazardous air pollutant (HAP) emitted by the source by more than any de minimis amount listed in Table 1, or which results in the emission of any HAP previously emitted by the source by more than any de minimis amount listed in Table 1.
 - a. A physical change in, or change in the method of operation of, a source which increases the actual emissions of any state HAP by that source is a modification if it results in total source emissions that exceed one ton per year of any individual HAP or two and one half tons per year of any combination of HAPs.
 - b. A physical change in, or change in the method of operation of, a source is not a modification subject to this section if:
 - i. The change, together with any other changes implemented or planned by the source, qualifies for an alternative emission limitation under § 112(i)(5) of the Clean Air Act.
 - ii. The change is required under a standard imposed under § 112(d) or § 112 (f) of the Clean Air Act and the change is implemented after the Administrator promulgates the standard.
 - iii. The change is routine maintenance, repair or replacement.
 - iv. The change is the use of an alternative fuel or raw material by reason of an order under Sections 2(a) and (b) of the Energy Supply and Environmental Coordination Act of 1974, 15 U.S.C. 792, or by reason of a natural gas curtailment plan under the Federal Power Act, 16 U.S.C. 792 - 825r;

- v. The change is the use of an alternative fuel by reason of an order or rule under Section 125 of the Act;
- vi. The change is the use of an alternative fuel at a steam generating unit to the extent that the fuel is generated from municipal solid waste;
- vii. The change is the use of an alternative fuel or raw material by a stationary source that either:
 - (1) The source was capable of accommodating before December 12, 1976, unless the change would be prohibited under any federally enforceable permit condition established after December 12, 1976, under 40 CFR 52.21, or under Articles 3 or 4 of this Chapter; or
 - (2) The source is approved to use under any permit issued under 40 CFR 52.21, or under Articles 3 or 4 of this Chapter.
- viii. The change is an increase in the hours of operation or in the production rate, unless the change would be prohibited under any federally enforceable permit condition established after December 12, 1976, under 40 CFR 52.21, or under Articles 3 or 4 of this Chapter.
- ix. The change is any change in ownership at a stationary source;
- x. The change is the addition, replacement, or use of a pollution control project at an existing electric utility steam generating unit, unless the Director determines that the addition, replacement, or use renders the unit less environmentally beneficial, or except:
 - (1) When the Director has reason to believe that the pollution control project would result in a significant net increase in representative actual annual emissions of any criteria pollutant over levels used for that source in the most recent Title I air quality impact analysis in the area, if any, and
 - (2) The Director determines that the increase will cause or contribute to a violation of any national ambient air quality standard or PSD increment, or visibility limitation;

- xi. The change is the installation, operation, cessation, or removal of a temporary clean coal technology demonstration project, if the project complies with:
 - (1) The SIP, and
 - (2) Other requirements necessary to attain and maintain the national ambient air quality standards during the project and after it is terminated;
- xii. For electric utility steam generating units located in attainment and unclassifiable areas only, the change is the installation or operation of a permanent clean coal technology demonstration project that constitutes repowering, if the project does not result in an increase in the potential to emit any regulated pollutant emitted by the unit. This exemption applies on a pollutant-by-pollutant basis; and
- xiii. For electric utility steam generating units located in attainment and unclassifiable areas only, the change is the reactivation of a very clean coal-fired electric utility steam generating unit.

Table 1. State HAPs De Minimis Levels

Chemical	De Minimis (lb/hr)	De Minimis (lb/yr)
1,1,1-Trichloroethane (Methyl Chloroform)	117	14,247
1,1,2,2-Tetrachloroethane	N/A	0.20
1,3-Butadiene	N/A	0.39
1,4-Dichlorobenzene	N/A	1.9
2,2,4-Trimethylpentane	51	N/A
2,4-Dinitrotoluene	N/A	0.13
2-Chloroacetophenone	N/A	0.19
Acetaldehyde	N/A	5.3
Acetophenone	1.4	2,261
Acrolein	0.013	0.129
Acrylonitrile	N/A	0.17
Antimony Compounds (Selected compound: Antimony)	0.71	9.0
Arsenic Compounds (Selected compound: Arsenic)	N/A	0.0027
Benzene	N/A	1.5

Benzyl Chloride	N/A	0.25
Beryllium Compounds (Selected compound: Beryllium)	7.07E-04	0.0049
Biphenyl	2.1	1,130
bis(2-Ethylhexyl) Phthalate	0.71	3.0
Bromoform	0.42	11
Cadmium Compounds (Selected compound: Cadmium)	N/A	0.0065
Carbon Disulfide	18	4,522
Carbon Tetrachloride	N/A	0.78
Carbonyl Sulfide	1.7	N/A
Chlorobenzene	57	6,442
Chloroform	N/A	2.2
Chromium Compounds (Selected compound: Hexavalent Chromium)	N/A	0.0010
Cobalt Compounds (Selected compound: Cobalt)	N/A	0.0042
Cumene	53	2,583
Cyanide Compounds (Selected compound: Hydrogen Cyanide)	0.22	19
Dibenzofurans	1.4	45
Dichloromethane (Methylene Chloride)	20	25
Dimethyl formamide	9.3	194
Dimethyl Sulfate	0.018	N/A
Ethyl Benzene	14	6,442
Ethyl Chloride (Chloroethane)	71	64,420
Ethylene Dibromide (Dibromoethane)	N/A	0.020
Ethylene Dichloride (1,2-Dichloroethane)	N/A	0.45
Ethylene glycol	2.8	2,583
Ethylidene Dichloride (1,1-Dichloroethane)	354	3,230
Formaldehyde	N/A	0.90
Glycol Ethers (Selected compound: Diethylene glycol, monoethyl ether)	14	19
Hexachlorobenzene	N/A	0.026
Hexane	659	13,689
Hydrochloric Acid	0.93	129

Hydrogen Fluoride (Hydrofluoric Acid)	0.56	90
Isophorone	0.71	12,946
Manganese Compounds (Selected compound: Manganese)	0.14	0.32
Mercury Compounds (Selected compound: Elemental Mercury)	0.058	1.9
Methanol	53	25,830
Methyl Bromide	15	32
Methyl Chloride	67	582
Methyl Ethyl Ketone	284	32,272
Methyl Hydrazine	N/A	0.0024
Methyl Isobutyl Ketone (Hexone)	28	19,388
Methyl Methacrylate	18	4,522
Methyl Tert-Butyl Ether	N/A	46
N, N-Dimethylaniline	1.4	45
Naphthalene	N/A	0.35
Nickel Compounds (Selected compound: Nickel Refinery Dust)	N/A	0.049
Phenol	3.3	1,295
Polychlorinated Biphenyls (Selected Compound: Aroclor 1254)	N/A	0.12
Polycyclic Organic Matter (Selected compound: Benzo(a)pyrene)	N/A	0.013
Propionaldehyde	N/A	5.3
Propylene Dichloride	14	26
Selenium Compounds (Selected compound: Selenium)	0.028	113
Styrene	31	6,442
Tetrachloroethylene (Perchloroethylene)	N/A	2.0
Toluene	109	146,766
Trichloroethylene	N/A	0.10
Vinyl Acetate	22	1,295
Vinyl Chloride	N/A	1.3
Vinylidene Chloride (1,2-Dichloroethylene)	2.1	1,295
Xylene (Mixed Isomers)	98	644

16. “Potential to emit” or “potential emission rate” means the maximum capacity of a stationary source to emit a pollutant, excluding secondary emissions, taking into

account controls that are enforceable under any federal, state or local law, rule or regulation or that are inherent in the design of the source.

17. “SIC Code” means the standard industrial classification code number for a source category derived from 1987 Standard Industrial Classification Manual (U.S. Office of Management and Budget, 1987).
18. “State hazardous air pollutant” (HAP) means any federally listed hazardous air pollutant.
19. “Technology transfer” means the process by which existing control technologies that have been successfully applied in other source categories that have similar processes or emissions units are reviewed for potential use in the applicant's source category.

R18-2-1702. Applicability

A. The provisions of this Article apply to:

1. Minor sources of state hazardous air pollutants that are in one of the source categories listed in Table 2; and
2. Major sources of state hazardous air pollutants.

Table 2. State HAPs Minor Source Categories

SIC Code	Source Category
1021	Copper Ores
2434	Wood Kitchen Cabinets
2451	Mobile Homes
2621	Paper Mills
2679	Converted Paper Products, n.e.c. ¹
2851	Paints and Allied Products
2911	Petroleum Refining
3086	Plastics Foam Products
3088	Plastics Plumbing Fixtures
3089	Plastics Products, n.e.c. ¹
3241	Cement, Hydraulic
3281	Cut Stone and Stone Products
3296	Mineral Wool
3312	Blast Furnaces and Steel mills
3331	Primary Copper
3411	Metal Cans
3444	Sheet Metal Work
3451	Screw Machine Products

3479	Metal Coating and Allied Services
3585	Refrigeration and Heating Equipment
3672	Printed Circuit Boards
3999	Mfg. Industries, n.e.c. ¹
4922	Natural Gas Transmission
5169	Chemicals and Allied Products, n.e.c. ¹
5171	Petroleum Bulk Stations and Terminals

¹ Not Elsewhere Classified

- B.** The provisions of this Article shall not apply to emissions units for which a standard under 40 C.F.R. Part 63 is an applicable requirement.
- C.** If the Clean Air Act has established provisions including specific schedules for the regulation of source categories under Section 112(e)(5) and 112(n), those provisions and schedules shall apply to the regulation of those source categories.
- D.** For any category or subcategory of facilities licensed by the Nuclear Regulatory Commission, the Director shall not adopt or enforce any standard or limitation respecting emissions of radionuclides which is more stringent than the standard or limitation adopted by the Administrator under Section 112 of the Act.

R18-2-1703. State list of hazardous air pollutants

All of the following federally listed hazardous air pollutants listed in § 112(b)(1) of the Clean Air Act, 42 U.S.C. § 7412(b)(1) are adopted:

1. Acetaldehyde (CAS 75070)
2. Acetamide (CAS 60355)
3. Acetonitrile (CAS 75058)
4. Acetophenone (CAS 98862)
5. 2-Acetylaminofluorene (CAS 53963)
6. Acrolein (CAS 107028)
7. Acrylamide (CAS 79061)
8. Acrylic acid (CAS 79107)
9. Acrylonitrile (CAS 107131)
10. Allyl chloride (CAS 107051)
11. 4-Aminobiphenyl (CAS 92671)
12. Aniline (CAS 62533)
13. o-Anisidine (CAS 90040)
14. Asbestos (CAS 1332214)
15. Benzene (including benzene from gasoline) (CAS 71432)

16. Benzidine (CAS 92875)
17. Benzotrichloride (CAS 98077)
18. Benzyl chloride (CAS100447)
19. Biphenyl (CAS 92524)
20. Bis(2-ethylhexyl)phthalate (DEHP) (CAS 117817)
21. Bis(chloromethyl)ether (CAS 542881)
22. Bromoform (CAS 75252)
23. 1,3-Butadiene (CAS 106990)
24. Calcium cyanamide (CAS 156627)
25. Captan (CAS 133062)
26. Carbaryl (CAS 63252)
27. Carbon disulfide (CAS 75150)
28. Carbon tetrachloride (CAS 56235)
29. Carbonyl sulfide (CAS 463581)
30. Catechol (CAS 120809)
31. Chloramben (CAS 133904)
32. Chlordane (CAS 57749)
33. Chlorine (CAS 7782505)
34. Chloroacetic acid (CAS 79118)
35. 2-Chloroacetophenone (CAS 532274)
36. Chlorobenzene (CAS 108907)
37. Chlorobenzilate (CAS 510156)
38. Chloroform (CAS 67663)
39. Chloromethyl methyl ether (CAS 107302)
40. Chloroprene (CAS 126998)
41. Cresols/Cresylic acid (isomers and mixture) (CAS 1319773)
42. o-Cresol (CAS 95487)
43. m-Cresol (CAS 108394)
44. p-Cresol (CAS 106445)
45. Cumene (CAS 98828)
46. 2,4-D,salts and esters (CAS 94757)
47. DDE (CAS 3547044)
48. Diazomethane (CAS 334883)
49. Dibenzofurans (CAS 132649)
50. 1,2-Dibromo-3-chloropropane (CAS 96128)
51. Dibutylphthalate (CAS 84742)
52. 1,4-Dichlorobenzene(p) (CAS 106467)
53. 3,3-Dichlorobenzidene (CAS 91941)
54. Dichloroethyl ether (Bis(2-chloroethyl)ether) (CAS 111444)
55. 1,3-Dichloropropene (CAS 542756)
56. Dichlorvos (CAS 62737)
57. Diethanolamine (CAS 111422)
58. N,N-Diethylaniline (N,N-Dimethylaniline) (CAS 121697)
59. Diethyl sulfate (CAS 64675)
60. 3,3-Dimethoxybenzidine (CAS 119904)
61. Dimethyl aminoazobenzene (CAS 60117)

62. 3,3'-Dimethyl benzidine (CAS 119937)
63. Dimethyl carbamoyl chloride (CAS 79447)
64. Dimethyl formamide (CAS 68122)
65. 1,1-Dimethyl hydrazine (CAS 57147)
66. Dimethyl phthalate (CAS 131113)
67. Dimethyl sulfate (CAS 77781)
68. 4,6-Dinitro-o-cresol, and salts (CAS 534521)
69. 2,4-Dinitrophenol (CAS 51285)
70. 2,4-Dinitrotoluene (CAS 121142)
71. 1,4-Dioxane (1,4-Diethyleneoxide) (CAS 123911)
72. 1,2-Diphenylhydrazine (CAS 122667)
73. Epichlorohydrin (1-Chloro-2,3-epoxypropane) (CAS 106898)
74. 1,2-Epoxybutane (CAS 106887)
75. Ethyl acrylate (CAS 140885)
76. Ethyl benzene (CAS 100414)
77. Ethyl carbamate (Urethane) (CAS 51796)
78. Ethyl chloride (Chloroethane) (CAS 75003)
79. Ethylene dibromide (Dibromoethane) (CAS 106934)
80. Ethylene dichloride (1,2-Dichloroethane) (CAS 107062)
81. Ethylene glycol (CAS 107211)
82. Ethylene imine (Aziridine) (CAS 151564)
83. Ethylene oxide (CAS 75218)
84. Ethylene thiourea (CAS 96457)
85. Ethylidene dichloride (1,1-Dichloroethane) (CAS 75343)
86. Formaldehyde (CAS 50000)
87. Heptachlor (CAS 76448)
88. Hexachlorobenzene (CAS 118741)
89. Hexachlorobutadiene (CAS 87683)
90. Hexachlorocyclopentadiene (CAS 77474)
91. Hexachloroethane (CAS 67721)
92. Hexamethylene-1,6-diisocyanate (CAS 822060)
93. Hexamethylphosphoramide (CAS 680319)
94. Hexane (CAS 110543)
95. Hydrazine (CAS 302012)
96. Hydrochloric acid (CAS 7647010)
97. Hydrogen fluoride (Hydrofluoric acid) (CAS 7664393)
98. Hydroquinone (CAS 123319)
99. Isophorone (CAS 78591)
100. Lindane (all isomers) (CAS 58899)
101. Maleic anhydride (CAS 108316)
102. Methanol (CAS 67561)
103. Methoxychlor (CAS 72435)
104. Methyl bromide (Bromomethane) (CAS 74839)
105. Methyl chloride (Chloromethane) (CAS 74873)
106. Methyl chloroform (1,1,1-Trichloroethane) (CAS 71556)
107. Methyl ethyl ketone (2-Butanone) (CAS 78933)

108. Methyl hydrazine (CAS 60344)
109. Methyl iodide (Iodomethane) (CAS 74884)
110. Methyl isobutyl ketone (Hexone) (CAS 108101)
111. Methyl isocyanate (CAS 624839)
112. Methyl methacrylate (CAS 80626)
113. Methyl tert butyl ether (CAS 1634044)
114. 4,4-Methylene bis(2-chloroaniline) (CAS 101144)
115. Methylene chloride (Dichloromethane) (CAS 75092)
116. Methylene diphenyl diisocyanate (MDI) (CAS 101688)
117. 4,4'-Methylenedianiline (CAS 101779)
118. Naphthalene (CAS 91203)
119. Nitrobenzene (CAS 98953)
120. 4-Nitrobiphenyl (CAS 92933)
121. 4-Nitrophenol (CAS 100027)
122. 2-Nitropropane (CAS 79469)
123. N-Nitroso-N-methylurea (CAS 684935)
124. N-Nitrosodimethylamine (CAS 62759)
125. N-Nitrosomorpholine (CAS 59892)
126. Parathion (CAS 56382)
127. Pentachloronitrobenzene (Quintobenzene) (CAS 82688)
128. Pentachlorophenol (CAS 87865)
129. Phenol (CAS 108952)
130. p-Phenylenediamine (CAS 106503)
131. Phosgene (CAS 75445)
132. Phosphine (CAS 7803512)
133. Phosphorus (CAS 7723140)
134. Phthalic anhydride (CAS 85449)
135. Polychlorinated biphenyls (Aroclors) (CAS 1336363)
136. 1,3-Propane sultone (CAS 1120714)
137. beta-Propiolactone (CAS 57578)
138. Propionaldehyde (CAS 123386)
139. Propoxur (Baygon) (CAS 114261)
140. Propylene dichloride (1,2-Dichloropropane) (CAS 78875)
141. Propylene oxide (CAS 75569)
142. 1,2-Propylenimine (2-Methyl aziridine) (CAS 75558)
143. Quinoline (CAS 91225)
144. Quinone (CAS 106514)
145. Styrene (CAS 100425)
146. Styrene oxide (CAS 96093)
147. 2,3,7,8-Tetrachlorodibenzo-p-dioxin (CAS 1746016)
148. 1,1,2,2-Tetrachloroethane (CAS 79345)
149. Tetrachloroethylene (Perchloroethylene) (CAS 127184)
150. Titanium tetrachloride (CAS 7550450)
151. Toluene (CAS 108883)
152. 2,4-Toluene diamine (CAS 95807)
153. 2,4-Toluene diisocyanate (CAS 584849)

154. o-Toluidine (CAS 95534)
155. Toxaphene (chlorinated camphene) (CAS 8001352)
156. 1,2,4-Trichlorobenzene (CAS 120821)
157. 1,1,2-Trichloroethane (CAS 79005)
158. Trichloroethylene (CAS 79016)
159. 2,4,5-Trichlorophenol (CAS 95954)
160. 2,4,6-Trichlorophenol (CAS 88062)
161. Triethylamine (CAS 121448)
162. Trifluralin (CAS 1582098)
163. 2,2,4-Trimethylpentane (CAS 540841)
164. Vinyl acetate (CAS 108054)
165. Vinyl bromide (CAS 593602)
166. Vinyl chloride (CAS 75014)
167. Vinylidene chloride (1,1-Dichloroethylene) (CAS 75354)
168. Xylenes (isomers and mixture) (CAS 1330207)
169. o-Xylenes (CAS 95476)
170. m-Xylenes (CAS 108383)
171. p-Xylenes (CAS 106423)
172. Antimony Compounds
173. Arsenic Compounds (inorganic including arsine)
174. Beryllium Compounds
175. Cadmium Compounds
176. Chromium Compounds
177. Cobalt Compounds
178. Coke Oven Emissions

179. Cyanide Compounds (X, CN where X = H' or any other group where a formal dissociation may occur. For example KCN or Ca(CN[2].)

180. Glycol ethers
 - a. Glycol ethers includes mono- and di- ethers of ethylene glycol, diethylene glycol, and triethylene glycol R-(O2H2CH2)[N]-OR' where:
 - i. n = 1, 2, or 3; R = alkyl or aryl groups;
 - ii. R' = R, H, or groups which, when removed, yield glycol ethers with the structure: R-(OCH2CH)[N]-OH. Polymers are excluded from the glycol category.
 - b. Glycol ethers does not include ethylene glycol monobutyl ether and surfactant alcohol ethoxylates and their derivatives (SAED).

181. Lead Compounds
182. Manganese Compounds
183. Mercury Compounds

- 184. Fine Mineral Fibers including mineral fiber emissions from facilities manufacturing or processing glass, rock or slag (or other mineral derived fibers) of average diameter 1 micrometer or less.
- 185. Nickel Compounds
- 186. Polycyclic Organic Matter including organic compounds with more than one benzene ring, and which have a boiling point greater than or equal to 100 degrees C.
- 187. Radionuclides, including radon. (Radionuclide is a type of atom which spontaneously undergoes radioactive decay.)
- 188. Selenium Compounds

R18-2-1704. Notice of Types and Amounts of HAPs

The owner or operator of a source subject to this Article shall provide the Director with notification, in a permit application, of the types and amounts of HAPs emitted by the source, by providing readily available data regarding emissions from the source. The Director shall not require the owner or operator to conduct performance tests, sampling or monitoring in order to fulfill the requirements of this subsection.

R18-2-1705. Modifications; Permits; Permit Revisions

- A.** Any person who constructs or modifies a source that is subject to R18-2-1702 must first obtain a permit or significant permit revision that complies with Article 3 of this Chapter, and subsection (B) or (C) of this Section.
- B.** A permit or significant permit revision that is issued to a new or modified source that is subject to this program under R18-2-1702(A)(1) shall HAPRACT under R18-2-1706, unless the applicant demonstrates, with a Risk Management Analysis under R18-2-1708, that the imposition of HAPRACT is not necessary to avoid adverse effects to human health or adverse environmental effects.
- C.** A permit or significant permit revision that is issued to a new or modified source that is subject to this program under R18-2-1702(A)(2) shall impose AZMACT under R18-2-1707, unless the applicant demonstrates, with a Risk Management Analysis under R18-2-1708 that the imposition of AZMACT is not necessary to avoid adverse effects to human health or adverse environmental effects.
- D.** The Director may establish HAPRACT for a source or source category in a general permit according to Article 5 of this Chapter.

1. The owner or operator of a source covered by that general permit may obtain a variance from HAPRACT by complying with R18-2-1708 at the time the source applies to be permitted under the general permit.
 2. If the owner or operator makes the applicable demonstration required by R18-2-1708 and otherwise qualifies for the general permit, the Director shall approve the application according to A.R.S. § 49-426 and issue an authorization-to-operate granting a variance from the specific provisions of the general permit relating to HAPRACT.
 3. Except as otherwise modified by a variance, the general permit shall govern the source.
- E.** When determining whether HAP emissions from a new source or modification exceed the thresholds prescribed by R18-2-1702, or a de minimis amount described in R18-2-1701 Table 1, the director shall exclude particulate matter emissions that consist of natural crustal material and are produced either by natural forces, such as wind or erosion, or by anthropogenic activities, such as agricultural operations, excavation, blasting, drilling, handling, storage, earth moving, crushing, grinding or traffic over paved or unpaved roads, or other similar activities.
- F.** In addition to the requirements of Title 18, Chapter 2, Appendix 1 “Standard Permit Application Form and Filing Instructions,” an application for a permit or permit revision required under this Section shall include one of the following:
1. The applicant’s proposal and documentation for HAPRACT under R18-2-1706;
 2. The applicant’s proposal and documentation for MACT under R18-2-1707.
 3. A risk management analysis submitted under R18-2-1708.
- G.** Any applicant for a permit or permit revision under this Article may request accelerated permit processing under R18-2-326(I).

R18-2-1706. Case-by Case HAPRACT Determination

- A.** The applicant shall include in the application sufficient documentation to show that the proposed control technology or methodology meets the requirements of A.R.S. § 49-426.06 and this Section.

- B.** An applicant subject to R18-2-1705(B) shall propose HAPRACT for the new source or modification, to be included in the applicant's permit or significant permit revision. The applicant shall document each of the following steps:
1. The applicant shall identify the range of applicable control technologies, including:
 - a. A survey of similar emission sources to determine the emission limitations currently achieved in practice in the United States;
 - b. Controls applied to similar source categories, emissions units, or gas streams through technology transfer; and
 - c. Innovative technologies that are demonstrated to be reliable, that reduce emissions for the HAP under review at least to the extent achieved by the control technology that would otherwise have been proposed and that meets all the requirements of A.R.S. § 49-426.06 and this Section.
 2. The applicant shall propose as HAPRACT one of the control technologies identified under subsection (B)(1), and shall provide:
 - a. The rationale for selecting the specific control technologies from the range identified in subsection (B)(1)
 - b. Estimated control efficiency, described as percent HAP removed;
 - c. Expected emission rate in tons per year and pounds per hour;
 - d. Expected emission reduction in tons per year and pounds per hour;
 - e. Economic impacts and cost effectiveness of implementing the proposed control technology;
 - f. Other environmental impacts of the proposed control technology; and
 - g. Energy impacts of the proposed technology.
 3. The applicant shall identify rejected control technologies identified in subsection (B)(1), and shall provide for each rejected control technology:
 - a. The rationale for rejecting the specific control technologies identified in subsection (B)(1);
 - b. Estimated control efficiency, described as percent HAP removed;

- c. Expected emission rates in tons per year and pounds per hour;
- d. Expected emission reduction in tons per year and pounds per hour;
- e. Economic impacts and cost effectiveness of implementing the rejected control technologies;
- f. Other environmental impacts of the rejected control technology;
and
- g. Energy impacts of the rejected control technologies.

C. The Director shall determine whether the applicant's HAPRACT selection complies with A.R.S. § 49-426.06 and this Section, based on the documentation provided in subsection (B),

- 1. If the Director finds that the applicant's proposal complies with A.R.S. § 49-426.06 and this Section, the applicant's proposed HAPRACT selection shall be included in the permit or permit revision.
- 2. If the Director finds that the applicant's proposal fails to comply with A.R.S. § 49-426.06 and this Section, the Director shall:
 - a. Notify the applicant that the proposal has failed to meet requirements;
 - b. Specify the deficiencies in the proposal; and
 - c. State that the applicant shall submit a new HAPRACT proposal, in accordance with the provisions on licensing time frames in Chapter 1, Article 5 of this Title.
- 3. If the applicant does not submit a new proposal, the Director may deny the application for a permit or permit revision.
- 4. If the Director finds that the new proposal fails to comply with A.R.S. § 49-426.06 and this Section, the Director may deny the application for a permit or permit revision.

D. If the Director finds that a reliable method of measuring HAP emissions is not available, the Director shall require compliance with a design, equipment, work practice or operational standard, or combination of these, but shall not impose a numeric emissions limitation.

- E.** The Director shall not impose a control technology that would require the application of measures that are incompatible with measures required under Article 11. An applicable control technology for a source or source category that is promulgated by the Administrator shall supersede control technology imposed by the Director for that source or source category.

R18-2-1707. Case-by-case AZMACT Determination.

- A.** The applicant shall include in the application sufficient documentation to show that the proposed control technology meets the requirements of A.R.S. § 49-426.06 and this Section.
- B.** An applicant subject to R18-2-1705(C) shall propose AZMACT for the new source or modification, to be included in the applicant's permit or permit revision. The applicant shall document each of the following steps:
1. The applicant shall identify all available control options, taking into consideration the measures cited in R18-2-1701(6). This analysis shall include a survey of emission sources to determine the most stringent emission limitation currently achieved in practice in the United States. This survey may include technologies employed outside of the United States, and may include not only existing controls for the source category in question, but also, through technology transfer, controls applied to similar source categories and gas streams.
 2. The applicant shall eliminate options that are technically infeasible because of source-specific factors. A demonstration of technical infeasibility shall be clearly documented and shall be based upon physical, chemical and engineering barriers that would preclude the successful use of each control option that the applicant has eliminated.
 3. The applicant shall rank the remaining control technologies in order of overall removal efficiency for the HAP under review, with the most effective at the top of the list. The list shall include the following information, for the control technology proposed and for any control technology that is ranked higher than the proposed technology:
 - a. Estimated control efficiency, described by percent of HAP removed;
 - b. Expected emission rate in tons per year and pounds per hour;
 - c. Expected emission reduction in tons per year and pounds per hour;
 - d. Economic impacts and cost effectiveness;

- e. Other environmental impacts; and
 - f. Energy impacts.
4. The applicant shall evaluate the most effective controls and document the results as follows:
- a. For new sources, the applicant shall consider the factors described in subsection (B)(3) of this Section to arrive at the final control technology to be proposed as AZMACT.
 - i. The applicant shall discuss both beneficial and adverse impacts and, where possible, quantify them, focusing on the direct impacts of each control technology.
 - ii. If the applicant proposes the top alternative in the list as AZMACT, they shall consider whether the impacts in other media mandate the selection of an alternative control technology. If there are no such impacts, the evaluation is complete and the applicant shall propose the resulting control technology as AZMACT. If the top control technology is not proposed as AZMACT, the applicant shall similarly evaluate the next most stringent technology in the list. The applicant shall continue this process until the technology under consideration is not eliminated by any source-specific, economic, environmental or energy impacts.
 - b. For modified sources, the applicant shall evaluate the control technologies as under subsection (B)(4)(a). AZMACT for modified sources may be less stringent than AZMACT for new sources in the same source category but shall not be less stringent than:
 - i. In cases where the applicant has identified 30 or more sources, the average emission limitation achieved by the best performing 12% of the existing similar sources for which emissions data may be obtained; or
 - ii. In cases where the applicant has identified fewer than 30 similar sources, the average emission limitation achieved by the best performing five sources for emissions data may be obtained.
5. The applicant shall propose AZMACT.

- a. The most effective control technology or methodology not eliminated in the evaluation described in subsection (B)(4) shall be proposed as AZMACT for the HAP under review.
 - b. The applicant may propose an innovative technology that reduces emissions for the HAP under review at least to the extent achieved by the control technology that would otherwise have been proposed and that meets all the requirements of A.R.S. § 49-426.06 and this Section.
- C. The control technology or methodology proposed shall not be less stringent than any applicable federal New Source Performance Standard (NSPS) or National Emission Standard for Hazardous Air Pollutants (NESHAP).
- D. The Director shall determine whether the applicant's AZMACT proposal complies with A.R.S. § 49-426.06 and this Section, based on the documentation supplied.
 - 1. If the Director finds that the applicant's proposal complies with A.R.S. § 49-426.06 and this Section, the applicant's proposed AZMACT selection shall be included in the permit or permit revision
 - 2. If the Director finds that the applicant's proposal fails to comply with A.R.S. § 49-426.06 and this Section, the Director shall:
 - a. Notify the applicant that the proposal has failed to meet requirements;
 - b. Specify the deficiencies in the proposal; and
 - c. State that the applicant shall submit a new AZMACT proposal, in accordance with the provisions on licensing time frames in Chapter 1, Article 5 of this Title.
 - 3. If the applicant does not submit a new proposal, the Director may deny the application for a permit or permit revision.
 - 4. If the Director finds that the new proposal fails to comply with A.R.S. § 49-426.06 and this Section, the Director may deny the application for a permit or permit revision.
- E. If a reliable method of measuring HAP emissions is not available, the Director shall require compliance with a design, equipment, work practice or operational standard, or combination of these, but shall not impose a numeric emissions limitation.

- F.** The Director shall not impose a control technology that would require the application of measures that are incompatible with measures required under Article 11. An applicable control technology for a source or source category that is promulgated by the Administrator shall supersede control technology imposed by the Director for that source or source category.

R18-2-1708. Risk management analyses

A. Applicability

1. An applicant seeking to demonstrate that HAPRACT or AZMACT is not necessary to prevent adverse effects to human health or the environment shall conduct a risk management analysis (RMA) in accordance with this Section.
2. An applicant seeking to demonstrate that HAPRACT or AZMACT is not necessary to prevent adverse effects to human health or the environment by conducting an RMA shall first apply for a permit or significant permit revision that complies with Article 3 of this Chapter.
3. The RMA for a new source shall apply to its total potential to emit state HAPs.
4. The RMA for a modified source shall apply to its total potential to emit state HAPs after the modification.
5. An RMA shall be conducted for each state HAP emitted by the source in greater than de minimis amounts.

B. The applicant may use one or more of the following methods for determining potential maximum public exposure to state HAPS.

1. Tier 1: Equation.
 - a. For emissions of a HAPs included in a listed group of hazardous compounds, other than those HAPs identified in Table 3 as selected compounds, the applicant shall determine a health-based ambient air concentration, under subsection (C)(3).
 - b. The applicant shall determine the potential maximum hourly exposure resulting from emissions of the HAP by applying the following equation:

$MHE = PPH * 17.68$, where:

- i. MHE = maximum hourly exposure in milligrams per cubic meter, and
 - ii. PPH = hourly potential to emit the HAP in pounds per hour.
- c. The applicant shall determine the potential maximum annual exposure resulting from emissions of the HAP by applying the following equation:

$MAE = PPY * 1/MOH * 1.41$, where:

- i. MAE = maximum annual exposure in milligrams per cubic meter,
 - ii. PPY = annual potential to emit the HAP in pounds per year, and
 - iii. MOH = maximum operating hours for the source, taking into account any enforceable operational limitations.
- d. The Director shall not require compliance with HAPRACT for the HAP, under R18-2-1706, or AZMACT, under R18-2-1707, if both of the following are true:
- i. The maximum hourly concentration determined under subsection (B)(1)(b) is less than the AAAC determined under subsection (C)(3); and
 - ii. The maximum annual concentration determined under subsection (B)(1)(c) is less than the CAAC determined under subsection (C)(3).
- e. If either the maximum hourly concentration determined under subsection (B)(1)(b), or the maximum annual concentration determined under subsection (B)(1)(c) is greater than or equal to the relevant AAC:
- i. The Director shall require compliance with HAPRACT under R18-2-1706 or AZMACT under R18-2-1707; or
 - ii. The applicant may employ the Tier 2 method for conducting an RMA under subsection (B)(2).

2. Tier 2: SCREEN Model. The applicant shall employ the SCREEN Model, performed in a manner consistent with the Guideline specified in R18-2-406(A)(6)(a). The applicant shall compare the maximum concentration that is predicted to in the ambient air with the relevant ambient air concentration determined under subsection (C).
 - a. If the predicted maximum concentration is less than the relevant ambient air concentration, the Director shall not require compliance with HAPRACT under R18-2-1706, or AZMACT under R18-2-1707.
 - b. If the predicted maximum concentration is greater than or equal to the relevant ambient air concentration:
 - i. The Director shall require compliance with HAPRACT under R18-2-1706, or AZMACT under R18-2-1707; or
 - ii. The applicant may employ the Tier 3 method for determining maximum public exposure to state HAPs, under subsection (B)(3).
3. Tier 3: Modified SCREEN Model. The applicant shall employ the SCREEN Model, performed in a manner consistent with the Guideline specified in R18-2-406(A).
 - a. For evaluation of acute exposure, the applicant shall assume exposure in the ambient air.
 - b. For evaluation of chronic exposure:
 - i. The applicant may use exposure assumptions consistent with institutional or engineering controls that are permanent and enforceable outside the permit.
 - ii. The applicant shall notify the Director of these controls. If the Director does not approve of the proposed controls, or if the controls are not permanent and enforceable outside of the permit, the applicant shall not use the method specified in subsection (B)(3)(b) to determine maximum public exposure to the state HAP.
 - c. If the predicted maximum concentration is less than the relevant ambient air concentration, the Director shall not require compliance with HAPRACT under R18-2-1706, or AZMACT under R18-2-1707.

- d. If the predicted maximum concentration is greater than or equal to the relevant ambient air concentration:
 - i. The Director shall require compliance with HAPRACT under R18-2-1706, or AZMACT under R18-2-1707; or
 - ii. The applicant may employ the Tier 4 method for determining maximum public exposure to state HAPs, under subsection (B)(4).
- 4. Tier 4: Modified SREEN or refined air quality model. The applicant shall employ either the SCREEN or a refined air quality model, performed in a manner consistent with the Guideline specified in R18-2-406(A).
 - a. For evaluation of acute exposure, the applicant shall assume exposure in the ambient air.
 - b. For evaluation of chronic exposure:
 - i. The applicant may use exposure assumptions consistent with institutional or engineering controls that are permanent and enforceable outside the permit.
 - ii. The applicant shall notify the Director of these controls. If the Director does not approve of the proposed controls, or if the controls are not permanent and enforceable outside of the permit, the applicant shall assume chronic exposure in the ambient air.
 - c. The applicant may include in the Tier 4 RMA documentation of the following factors:
 - i. The estimated actual exposure to the HAP of persons living in the airshed of the source;
 - ii. Available epidemiological or other health studies;
 - iii. Risks presented by background concentrations of hazardous air pollutants;
 - iv. Uncertainties in risk assessment methodology or other health assessment techniques;
 - v. Health or environmental consequences from efforts to reduce the risk; or

- vi. The technological and commercial availability of control methods beyond those otherwise required for the source and the cost of such methods.
- d. The applicant shall submit a written protocol for conducting an RMA, consistent with the requirements of this Section, to the Director for the Director's approval.
- e. If the predicted maximum concentration is less than the relevant ambient air concentration, or if warranted in the Director's judgment by consideration of those factors listed in subsection (B)(4)(c), the Director shall not require compliance with HAPRACT under R18-2-1706, or AZMACT under R18-2-1707.
- f. Except as provided in subsection (B)(4)(e), if the predicted maximum concentration is greater than or equal to the relevant ambient air concentration, the Director shall require compliance with HAPRACT under R18-2-1706, or AZMACT under R18-2-1707.

C. Health Based Ambient Air Concentrations of State HAPs.

- 1. For state HAPs for which an AAC has already been determined, the applicant shall use the acute and chronic values listed in Table 3.

Table 3. Acute and Chronic Ambient Air Concentrations

Chemical	Acute AAC (mg/m³)	Chronic AAC (mg/m³)
1,1,1-Trichloroethane (Methyl Chloroform)	2,075	2.30E+00
1,1,2,2-Tetrachloroethane	18	3.27E-05
1,3-Butadiene	7,514	6.32E-05
1,4-Dichlorobenzene	300	3.06E-04
2,2,4-Trimethylpentane	900	NA
2,4-Dinitrotoluene	5.0	2.13E-05
2-Chloroacetophenone	NA	3.13E-05
Acetaldehyde	306	8.62E-04
Acetophenone	25	3.65E-01
Acrolein	0.23	2.09E-05
Acrylonitrile	38	2.79E-05

Antimony Compounds (Selected compound: Antimony)	13	1.46E-03
Arsenic Compounds (Selected compound: Arsenic)	2.5	4.41E-07
Benzene	1,276	2.43E-04
Benzyl Chloride	26	3.96E-05
Beryllium Compounds (Selected compound: Beryllium)	0.013	7.90E-07
Biphenyl	38	1.83E-01
bis(2-Ethylhexyl) Phthalate	13	4.80E-04
Bromoform	7.5	1.72E-03
Cadmium Compounds (Selected compound: Cadmium)	0.25	1.05E-06
Carbon Disulfide	311	7.30E-01
Carbon Tetrachloride	201	1.26E-04
Carbonyl Sulfide	30	NA
Chlorobenzene	1,000	1.04E+00
Chloroform	195	3.58E-04
Chromium Compounds (Selected compound: Hexavalent Chromium)	0.10	1.58E-07
Cobalt Compounds (Selected compound: Cobalt)	10	6.86E-07
Cumene	935	4.17E-01
Cyanide Compounds (Selected compound: Hydrogen Cyanide)	3.9	3.13E-03
Dibenzofurans	25	7.30E-03
Dichloromethane (Methylene Chloride)	347	4.03E-03
Dimethyl formamide	164	3.13E-02
Dimethyl Sulfate	0.31	NA
Ethyl Benzene	250	1.04E+00
Ethyl Chloride (Chloroethane)	1,250	1.04E+01
Ethylene Dibromide (Dibromoethane)	100	3.16E-06
Ethylene Dichloride (1,2-Dichloroethane)	405	7.29E-05
Ethylene glycol	50	4.17E-01
Ethylidene Dichloride (1,1-Dichloroethane)	6,250	5.21E-01
Formaldehyde	17	1.46E-04

Glycol Ethers (Selected compound: Diethylene glycol, monoethyl ether)	250	3.14E-03
Hexachlorobenzene	0.50	4.12E-06
Hexane	11,649	2.21E+00
Hydrochloric Acid	16	2.09E-02
Hydrogen Fluoride (Hydrofluoric Acid)	9.8	1.46E-02
Isophorone	13	2.09E+00
Manganese Compounds (Selected compound: Manganese)	2.5	5.21E-05
Mercury Compounds (Selected compound: Elemental Mercury)	1.0	3.13E-04
Methanol	943	4.17E+00
Methyl Bromide	261	5.21E-03
Methyl Chloride	1,180	9.39E-02
Methyl Ethyl Ketone	5,015	5.21E+00
Methylhydrazine	0.43	3.96E-07
Methyl Isobutyl Ketone (Hexone)	500	3.13E+00
Methyl Methacrylate	311	7.30E-01
Methyl Tert-Butyl Ether	1,444	7.40E-03
N, N-Dimethylaniline	25	7.30E-03
Naphthalene	75	5.58E-05
Nickel Compounds (Selected compound: Nickel Refinery Dust)	5.0	7.90E-06
Phenol	58	2.09E-01
Polychlorinated Biphenyls (Selected Compound: Aroclor 1254)	2.5	1.90E-05
Polycyclic Organic Matter (Selected compound: Benzo(a)pyrene)	5.0	2.02E-06
Propionaldehyde	403	8.62E-04
Propylene Dichloride	250	4.17E-03
Selenium Compounds (Selected compound: Selenium)	0.50	1.83E-02
Styrene	554	1.04E+00
Tetrachloroethylene (Perchloroethylene)	814	3.20E-04
Toluene	1,923	5.21E+00
Trichloroethylene	1,450	1.68E-05

Vinyl Acetate	387	2.09E-01
Vinyl Chloride	2,099	2.15E-04
Vinylidene Chloride (1,2-Dichloroethylene)	38	2.09E-01
Xylene (Mixed Isomers)	1,736	1.04E-01

2. For state HAPs for which an AAC has not already been determined, the applicant shall determine the acute and chronic AACs in accordance with the process in Appendix 12.
 3. For specific compounds included in state HAPS listed as a group (eg: arsenic compounds), the applicant may use an AAC developed in accordance with the process in Appendix 12.
- D.** As part of the risk management analysis, an applicant may voluntarily propose emissions limitations under R18-2-306.01 in order to avoid being subject to HAPRACT under R18-2-1706, or AZMACT under R18-2-1707.
- E.** Documentation of Risk Management Analysis. The applicant shall document each RMA performed for each state HAP and shall include the following information:
1. The potential maximum public exposure of the state HAP;
 2. The Tier method used to determine the potential maximum public exposure:
 - a. For Tier 1, the calculations demonstrating that the emissions of the state HAP are less than the health-based ambient air concentration, determined under subsection (C)(3).
 - b. For Tier 2, the input files to, and the results of the SCREEN Modeling.
 - c. For Tier 3:
 - i. The input files to, and the results of the SCREEN Modeling; and
 - ii. The permanent and enforceable institutional or engineering controls submitted to the Director under subsection (B)(3)(b).
 - d. For Tier 4:

- i. The model the applicant employed;
 - ii. The input files to, and the results of the modeling;
 - iii. The modeling protocol approved by the Director under subsection (B)(4)(b); and
 - iv. The permanent and enforceable institutional or engineering controls submitted to the Director under subsection (B)(4)(d);
 - 3. The health-based ambient air concentrations determined under subsection (C); and
 - 4. Any voluntary emissions limitations, accepted under subsection (D).
- G.** An applicant may conduct an RMA for any alternative operating scenario, requested in the application, consistent with the requirements of this Section.

R18-2-1709. Periodic review

- A.** Within one year after the Administrator adds or deletes a pollutant to the federal list of hazardous air pollutants, under Section 112(b)(2) or 112(b)(3) of the Clean Air Act, the Director shall adopt those revisions for the state list of HAPs in R18-2-1703, unless the Director finds that there is no scientific evidence to support the revision.
- B.** The Director shall review the state list of HAPs at least once every three years.
- C.** Based upon the review, the Director may revise by rulemaking:
 - 1. The state list of HAPs. The Director shall add any HAP to, or delete any HAP from, the state list at R18-2-1703, that has been added to or deleted from the federal list at § 112(b)(1) of the Clean Air Act, 42 U.S.C. 7412(b)(1);
 - 2. The acute and chronic health based ambient air concentrations for state HAPs; and
 - 3. The acute and chronic de minimis levels for state HAPs.